means for providing an articulated joint between the tibial platform means and femoral portions of the knee;

wherein the improvement comprises:

(c) [the tibial platform means comprises track means, the track] means for constraining motion of the bearing insert means <u>during</u> joint articulation to a predetermined path relative to the tibial platform means.

Add new claim IA as follows:

Claim wherein the means for constraining motion of the bearing insert means during joint articulation to a predetermined path relative to the tibial platform means comprises: track surface means provided on one of the tibial platform means or the bearing insert means and track surface following means provided on the other of the tibial platform means or the bearing insert means, the track surface following means engaging the track surface means.

Rewrite claim 2 as claim 2 (amended) as follows:

in claim improved prosthetic joint as recited in claim in wherein the track surface means comprises[a]curved track surface means.

Rewrite claim 3 as claim 3 (amended) as follows:

3. (amended) An improved prosthetic joint as recited
in claim [1] wherein the curved track surface means comprises
[a] circular curved track surface means.

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Rewrite claim 4 as claim 4 (amended) as follows:

A. (amended) An improved prosthetic joint of the type including:

- a) tibial platform means having a first superior bearing surface, the tibial platform means for replacing tibial portions of a knee;
 b) bearing insert means having a first inferior bearing surface which slidably engages the first superior bearing surface of the tibial platform means for sliding movement relative thereto during joint articulation, the bearing insert means having a second superior bearing surface, the bearing insert means for providing an articulated joint between the tibial platform means and a femoral component means, and,
- femoral component means having a second inferior bearing surface which slidably engages the second superior bearing surface of the bearing insert means, the femoral component means for replacing femoral portions of the knee;

wherein the improvement comprises:

(d) [the tibial platform means comprises track means, the track] means for constraining motion of the bearing insert means <u>during joint</u>

articulation to a predetermined path relative to the tibial platform means.

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Add new claim 4A as follows:

An improved prosthetic joint as recited in claim wherein the means for constraining motion of the bearing insert means during joint articulation to a predetermined path relative to the tibial platform means comprises: track surface means provided on one of the tibial platform means or the bearing insert means and track surface following means provided on the other of the tibial platform means or the bearing insert means, the track surface following means engaging the track surface means.

Rewrite claim 5 as claim 5 (amended) as follows:

(amended) An improved prosthetic joint as recited in Claim AA, wherein the track surface means comprises [a] curved track surface means.

Rewrite claim 6 as claim 6 (amended) as follows:

in Claim [4] s, wherein the <u>curved</u> track <u>surface</u> means comprises [a] circular curved track <u>surface</u> means.

Rewrite claim 7 as claim 7 (amended) as follows: 52. (amended) An improved prosthetic joint as recited in Claim 1, further comprising retention means, the retention means for preventing dislocation of the bearing insert means from [the track means of] the tibial platform means during the

Rewrite claim 8 as claim 8 (amended) as follows:

8. (amended) An improved prosthetic joint as recited in

Claim / wherein the retention means comprises:

normal range of knee motion.

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- a) portions of one of the bearing insert means or the tibial platform means defining a dovetail projection; and,
- b) portions of the [track means of the] other of the bearing insert means or the tibial platform means defining track means having a complementary dovetail cross-section within which the dovetail projection is slidably retained.

Rewrite claim-9 as claim-9 (amended) as follows:

129. (amended) An improved prosthetic joint of the type including:

- bearing surface, the tibial platform means for replacing tibial portions of a first condylar articulation of a knee;
 - b) bearing insert means having a first inferior bearing surface which slidably engages the first superior bearing surface of the tibial platform means for sliding movement relative thereto during joint articulation, the bearing insert means having a second superior bearing surface, the bearing insert means for providing an articulated joint replacing the first condylar articulation of the knee;
 - c) femoral component means having a second inferior bearing surface which slidably engages the second superior bearing surface of the

bearing insert means, the femoral component means for replacing femoral portions of the first condylar articulation of the knee; and, d) wherein the knee includes a second condylar articulation including a third, substantially spherical concave, superior bearing surface, which slidably engages a third, substantially spherical convex, inferior bearing surface; e) wherein the third, substantially spherical concave, superior bearing surface defines a first center of curvature;

wherein the improvement comprises:

- f) [the tibial platform means comprises circular curved track] means for constraining motion of the bearing insert means during joint articulation to a predetermined circular path relative to the tibial platform means;
- g) wherein the circular [curved track means] path lies within a first plane and has a second center of curvature, thereby defining a first axis perpendicular to the first plane and passing through the second center of curvature; and,
 - $^{\prime\prime}$ h) wherein the first axis passes substantially through the first center of curvature of the third, substantially spherical concave, superior bearing surface of the second condylar articulation.

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Add new claim 9A as follows:

wherein the means for constraining motion of the bearing insert means during joint articulation to a predetermined circular path relative to the tibial platform means comprises circular track surface means provided on one of the tibial platform means or the bearing insert means and track surface following means provided on the other of the tibial platform means or the bearing insert means, the track surface following means engaging the track surface means.—

Rewrite claim 10 as claim 10 (amended) as follows: ...

(amended) An improved prosthetic joint of the type including:

- (a) first tibial platform means having a first superior bearing surface, the first tibial platform means for replacing tibial portions of a first condylar articulation of a knee;
- b) second tibial platform means having a second superior bearing surface, the second tibial platform means for replacing tibial portions of a second condylar articulation of the knee;
- c) first bearing insert means having a first inferior bearing surface which slidably engages the first superior bearing surface of the first tibial platform means for sliding movement relative thereto during joint articulation,

the first bearing insert means having a third superior bearing surface, the first bearing insert means for providing a first articulated joint replacing the first condylar articulation of the knee;

- d) second bearing insert means having a second inferior bearing surface which slidably engages the second superior bearing surface of the second tibial platform means for sliding movement relative thereto during joint articulation, the second bearing insert means having a fourth superior bearing surface, the second bearing insert means for providing a second articulated joint replacing the second condylar articulation of the knee;
- e) first femoral component means having a third inferior bearing surface which slidably engages the third superior bearing surface of the first bearing insert means, the first femoral component means for replacing femoral portions of the first condylar articulation of the knee; and,
 - f) second femoral component means having a fourth inferior bearing surface which slidably engages the fourth superior bearing surface of the second bearing insert means, the second femoral component means for replacing femoral portions of the second condylar articulation of the knee;

wherein the improvement comprises:

first track means, the] first [track] means for constraining motion of the first bearing insert means during joint articulation to a first predetermined path relative to the first tibial platform means; and, (h) [the second tibial platform means comprises second track means, the] second [track] means for constraining motion of the second bearing insert means during joint articulation to a second predetermined path relative to the second tibial platform means.

Add new claim 10A as follows:

laim to wherein the first means recited in (g) for constraining motion of the first bearing insert means during joint articulation to a first predetermined path relative to the first tibial platform means comprises: first track surface means provided on one of the first tibial platform means or the first bearing insert means and first track surface following means provided on the other of the first tibial platform means or the first bearing insert bearing insert means, the first track surface following means engaging the first track surface means; and

wherein the second means recited in (h) for constraining motion of the second bearing insert means during joint articulation to a second predetermined path relative to the second tibial platform means comprises: second track surface means provided on one of the second tibial platform means or the second bearing insert means and second track surface following means provided on the other of the second tibial platform means or the second bearing insert means, the second track surface following means engaging the second track surface means.

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Rewrite claim 11 as claim 11 (amended) as follows:

(amended) An improved prosthetic joint as recited in Claim 10A, wherein:

- (a) the first track <u>surface</u> means [of the first tibial platform means] comprises [a] first curved track <u>surface</u> means; and,
- (b) the second track <u>surface</u> means [of the second tibial platform means] comprises [a] second curved track surface means.

Rewrite claim 12 as claim 12 (amended) as follows:

in Claim [10] 11, wherein:

- (a) the first track <u>surface</u> means [of the first tibial platform means] comprises a first circular curved track <u>surface means</u>; and,
- tibial platform means] comprises [a] second circular curved track surface means.

Rewrite claim 13 as claim 13 (amended) as follows:

in claim 10. (amended) An improved prosthetic joint as recited in claim 10. further comprising bridge means connecting the first tibial platform means and the second tibial platform means, the bridge means for improving accuracy of placement of the first tibial platform means relative to the second tibial platform means, the bridge means also for sharing mechanical loads between the first tibial platform means and the second tibial platform means [while permitting retention of cruciate ligaments].

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Cancel Claim 17.

Rewrite claim 18 as claim 18 (amended) as follows:

(amended) An improved prosthetic joint as recited in Claim [10] 4, wherein:

- a) the [third] <u>second</u> inferior bearing surface of the first femoral component means is slightly incongruent with the [third] <u>second</u> superior bearing surface of the [first] bearing insert means;
- b) thereby accommodating anterior-posterior shift of the first bearing insert means relative to the first tibial platform means, and thereby facilitating flexion and rotation of the prosthetic joint.

Cancel Claim 19. Rewrite claim 20 as claim 20 (amended) as follows:

(amended) An improved prosthetic joint of the type including:

- (a) platform means having a first bearing surface, the platform means for being secured to a first bone of an anatomical joint;
- which slidably engages the first bearing surface of the platform means for sliding movement relative thereto, during joint articulation, the bearing insert means for providing an articulated joint between the platform means and portions of the anatomical joint associated with a second bone;

wherein the improvement comprises:

(c) [the platform means comprises track means, the track]
means for constraining motion of the bearing insert

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means during joint articulation to a predetermined path relative to the platform means.

Add new claim 20A as follows:

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wherein the means for constraining motion of the bearing insert means during joint articulation to a predetermined path relative to the platform means comprises: track surface means provided on one of the platform means or the bearing insert means and track surface following means provided on the other of the platform means or the bearing insert means, the track surface following means slidably engaging the track surface means.

Řewrite claim 21 as claim 21 (amended) as follows: ò

21. (amended) An improved prosthetic joint as recited in Claim [20]/2]A, wherein the track <u>surface</u> means comprises [a] curved track <u>surface</u> means.

Rewrite claim 22 as claim 22 (amended) as follows:

22. (amended) An improved prosthetic joint as recited in Claim [20] 21 wherein the <u>curved</u> track <u>surface</u> means comprises [a] circular curved track surface means.

Rewrite claim 23 as claim 23 (amended) as follows:

- 23. (amended) An improved prosthetic joint of the type including:
 - a) platform means having a first bearing surface, the platform means for being secured to a first bone of an anatomical joint;
 - b) bearing insert means having a second bearing surface which slidably engages the first bearing

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surface of the platform means for sliding movement relative thereto during joint articulation, the bearing insert means having a third bearing surface, the bearing insert means for providing an articulated joint between the platform means and a second bone component means; and,

bearing surface which slidably engages the third bearing surface of the bearing insert means, the second bone component means for being secured to a second bone of the anatomical joint;

wherein the improvement comprises:

d) [the platform means comprises track means, the track] means for constraining motion of the bearing insert means during joint articulation to a predetermined path relative to the platform means.

Add new claim 23A as follows:

wherein the means for constraining motion of the bearing insert means during joint articulation to a predetermined path relative to the platform means comprises: track surface means provided on one of the platform means or the bearing insert means and track surface following means provided on the other of the platform means or the bearing insert means are track surface following means slidably engaging the track surface means.—

Rewrite claim 24 as claim 24 (amended) as follows: *

(amended) An improved prosthetic joint as recited in 234, wherein the track <u>surface</u> means comprises [a] curved track <u>surface</u> means.

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Rewrite claim 25 as claim 25 (amended) as follows:

26.25. (amended) An improved prosthetic joint as recited in

claim [23].24, wherein the <u>curved</u> track <u>surface</u> means comprises

[a] circular curved track <u>surface</u> means.

Rewrite claim 26 as claim 26 (amended) as follows:

26. (amended) An improved prosthetic joint as recited in

Claim [20] 23, further comprising retention means, the retention

means for preventing dislocation of the bearing insert means

from [the track means of] the platform means during the

normal range of joint motion.

Rewrite claim 27 as claim 27 (amended) as follows:

27. (amended) An improved prosthetic joint as recited in Claim of wherein the retention means comprises:

- (a) portions of one of the bearing insert means or the platform means defining a dovetail projection; and,
 - b) portions of the [track means of the] other of the bearing insert means or the platform means defining track means having a complementary dovetail cross-section within which the dovetail projection is slidably retained.

Rewrite claim 28 as claim 28—(amended)—as_follows:)
30 28. (amended) An improved prosthetic joint of the type including:

- a) platform means having a first bearing surface, the platform means for being secured to a first bone of an anatomical joint;
- b) bearing insert means having a second bearing surface which slidably engages the first bearing surface of the

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platform means for sliding movement relative thereto

during joint articulation, the bearing insert means having
a third bearing surface, the bearing insert means for
providing a first articulated joint between the platform
means and a second bone component means;

- c) second bone component means having a fourth bearing surface which slidably engages the third bearing surface of the bearing insert means, the second bone component means for being secured to a second bone of the anatomical joint;
- (a) wherein the anatomical joint includes a second articulated joint including a fifth, substantially spherical concave bearing surface, which slidably engages a sixth, substantially spherical convex, bearing surface;
- e) wherein the fifth, substantially spherical concave, bearing surface defines a first center of curvature; wherein the improvement comprises:
 - f) [the platform means comprises circular curved track] means for constraining motion of the bearing insert means during joint articulation to a predetermined circular path relative to the platform means;
 - (g) wherein the circular [curved track means] path lies within a first plane and has a second center of curvature, thereby defining a first axis perpendicular to the first plane and passing through the second center of curvature; and,
 - .h) wherein the first axis passes <u>substantially</u> through a point near the first center of curvature of the fifth, substantially spherical concave, bearing surface of the second articulated joint.

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Add new claim 28A as follows:

wherein the means for constraining motion of the bearing insert means during joint articulation to a predetermined circular path relative to the platform means comprises circular track surface means provided on one of the platform means or the bearing insert means and track surface following means provided on the other of the platform means or the bearing insert means are track surface following means slidably engaging the track surface means.

Rewrite claim 29 as claim 29 (amended) as follows:

37. (amended) An improved prosthetic joint of the type including:

- a) first platform means having a first bearing surface, the first platform means for being secured to a first bone of an anatomical joint;
- (b) second platform means having a second bearing surface, the second platform means for being also secured to the first bone of the anatomical joint;
- c) first bearing insert means having a third bearing surface which slidably engages the first bearing surface of the first platform means for sliding movement relative thereto during joint articulation, the first bearing insert means having a fourth bearing surface, the first bearing insert means for providing a first articulated joint between the first platform means and a first component means;
- d) second bearing insert means having a fifth bearing surface which slidably engages the second bearing surface of the second platform means for sliding movement

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relative thereto during joint articulation, the second bearing insert means having a sixth bearing surface, the second bearing insert means for providing a second articulated joint between the second platform means and a second component means;

- (e) first component means having a seventh bearing surface which slidably engages the fourth bearing surface of the first bearing insert means, the first component means for being secured to a second bone of the anatomical joint;
- f) second component means having an eighth bearing surface which slidably engages the sixth bearing surface of the second bearing insert means, the second component means for being also secured to the second bone of the anatomical joint;

wherein the improvement comprises:

- means, the] first [track] means for constraining motion of the first bearing insert means during joint articulation to a first predetermined path relative to the first platform means; and,
- (h) [the second platform means comprises second track means, the] second [track] means for constraining motion of the second bearing insert means during joint articulation to a second predetermined path relative to the second platform means.

Add new claim 29A as follows:

wherein the first means recited in (g) for constraining

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motion of the first bearing insert means during joint articulation to a first predetermined path relative to the first platform means comprises: first track surface means provided on one of the first platform means or the first bearing insert means and first track surface following means provided on the other of the first platform means or the first bearing insert means, the first platform means or the first bearing insert means, the first track surface following means slidably engaging the first track surface means; and

wherein the second means recited in (h) for constraining motion of the second bearing insert means during joint articulation to a second predetermined path relative to the second platform means comprises: second track surface means provided on one of the second platform means or the second bearing insert means and second track surface following means provided on the other of the second platform means or the second bearing insert means, the second track surface following means slidably engaging the second track surface means.

Rewrite claim 30 as claim 30 (amended) as follows:

37. (amended) An improved prosthetic joint as recited in Claim 29A, wherein:

- means] comprises [a] first curved track surface means; and,
- b) the second surface means [of the second platform means] comprises [a] second curved track surface means.

 Rewrite claim 31 as claim 31 (amended) as follows:

35.31. (amended) An improved prosthetic joint as recited in Claim [29] 50, wherein:

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- a) the first track <u>surface</u> means [of the first platform means] comprises a first circular curved track surface means; and,
 - b) the second track <u>surface</u> means [of the second platform means] comprises [a] second circular curved track <u>surface means</u>.

Rewrite claim 32 as claim 32 (amended) as follows:

32. (amended) An improved prosthetic joint as recited in Claim 35, further comprising bridge means connecting the first platform means and the second platform means, the bridge means for improving accuracy of placement of the first platform means relative to the second platform means, for sharing force loads between the first platform means and the second platform means [, and for permitting retention of anatomical tissue].

Cancel claim 36.

Rewrite claim 37 as claim 37 (amended) as follows:

(amended) An improved prosthetic joint as recited in Claim [29] 23, wherein:

- a) the [seventh] <u>fourth</u> bearing surface of the [first] <u>second bone</u> component means is slightly incongruent with the [fourth] <u>third</u> bearing surface of the [first] bearing insert means;
- b) thereby accommodating motion of the [first] bearing insert means relative to the [first] platform means, and thereby facilitating flexion and rotation of the prosthetic joint.

Cancel claim 38.

Rewrite claim 39 as claim 39 (amended) as follows:

(amended) An improved prosthetic joint according to Claims 25, 21, 22, 23, 24, 25, 26, 21 -[-33, -34, 35] or 36, wherein the anatomical joint is an ankle, the first bone is a talus, and the second bone is a tibia.

Add new claims 40-50 as follows:

a first bone and a second bone, comprising:

first means for being implanted in said first bone and having a first bearing surface;

second means for being implanted in said second bone and having a second bearing surface for being positioned opposite said first bearing surface; and

third means for being positioned intermediate and for engaging said bearing surfaces to provide joint articulation between said bones and for permitting unrestricted motion in a first predetermined direction within limits permitted by soft tissue, unrestricted axial motion and for providing stability in the second predetermined direction.

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and second components, one surface of the first component being adapted for securement to the tibia, one surface of the second component defining a generally concave bearing surface for mutual articulatory engagement with a femoral condylar surface, the other surface of each component providing a substantially planar bearing surface for mutual sliding engagement between such other surfaces, and said other surfaces of said components being respectively provided with a projection and a track for constraining motion of said first component during joint articulation to a predetermined path defined by said track.

wherein said projection and track are of complementary dovetail, cross-sectional shape.

An improved prosthetic knee joint according to claims 4. Hor 12 wherein said track is a curved track.

wherein said track is a circular curved track.

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As. An improved prosthetic joint of the type including:

a) tibial platform means having a first superior bearing surface, the tibial platform means for replacing tibial portions of a knee;

b) circular bearing insert means of a predetermined size having a first inferior bearing surface which slidably engages the first superior bearing surface of the tibial platform means for rotating and sliding movement relative thereto, the bearing insert means provided with a generally concave second superior bearing surface for providing an articulated joint between the tibial platform means and femoral portions of the knee;

wherein the improvement comprises

- insert means relative to the tibial platform means independent of sliding movement of the bearing insert means relative to the tibial platform means thereby
 - i) permitting the bearing insert means to be non-circular and larger in size than said predetermined size thereby providing greater resistance to bearing insert dislocation and larger shifting forces for improved bearing insert mobility, and
 - ii) permitting the use of a non-central radius to define the generally concave second superior bearing surface thereby providing greater bearing insert medial-lateral stability.



a tibial platform for replacing tibial portions of a knee, a tibial platform for by the contract of a knee, a tibial platform provided with two outwardly curved tracks on

its superior surface;

a pair of intermediate tibial bearing components, each component provided with an inferior bearing surface for being slidably received in one of the putwardly curved tracks, and each component provided with a generally concave bearing surface on its superior surface providing an articulated joint with femoral condylar surfaces; and

during knee joint articulation: the pair of tibial bearing components simultaneously sliding anteriorly-posteriorly in the outwardly curved tracks to provide unconstrained anterior-posterior shift, one of the tibial bearing components sliding anteriorly in one of the outwardly curved tracks while the other of the tibial components is sliding posteriorly in the other of the curved tracks to provide unconstrained axial rotation, and the tracks providing enhanced medial-lateral stability.

An improved prosthetic knee joint, comprising:

a tibial platform for replacing tibial portions of a knee, the tibial platform provided with an outwardly curved track on its superior surface;

a femoral component for replacing femoral portions of a knee, the femoral component having an inferior generally convex bearing surface;

an intermediate tibial bearing component provided with an inferior bearing surface for being slidably received in the outwardly curved track and the component provided with a generally concave bearing surface on its superior surface for articulation with the inferior generally convex bearing surface provided on the femoral component; and

during knee joint articulation: the tibial bearing component sliding anteriorly-posteriorly in the outwardly curved track to provide unconstrained anterior-posterior shift, unconstrained axial rotation, and the outwardly curved track providing enhanced medial-lateral stability.

48. An improved prosthetic joint of the type including:

- a) tibial platform means for replacing tibial portions of a knee and having a superior bearing surface;
- b) bearing insert means for providing an articulated joint between the tibial platform means and femoral portions of the knee, the bearing insert means having an inferior bearing surface for slidably and/or rotatably engaging the superior bearing surface of the tibial platform means during joint articulation and undergoing axial rotation and/or anterior-posterior shift during joint articulation; the bearing insert means having medial-lateral stability during joint articulation;

wherein the improvement/comprises:

c) means for providing the bearing insert means with improved medial lateral stability substantially unaffected by the axial rotation and/or anterior-posterior shift of the bearing insert means during joint articulation.

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5149. An improved prosthetic joint according to Claim 48 wherein the means for providing the bearing insert means with improved medial-lateral stability comprise a projection and a curved track for receiving the projection.

50. An improved prosthetic knee joint, comprising:

a tibial platform for replacing tibial portions of a knee, the tibial platform provided with two outwardly curved tracks on its superior surface;

a femoral component for replacing femoral portions of the knee, the femoral component provided with an inferior generally convex bearing surface;

a pair of intermediate tibial bearing components; each component provided with an inferior bearing surface for being slidably received in one of the outwardly curved tracks, and each component provided with a superior generally concave bearing surface for articulation with the inferior generally convex bearing surface of the femoral component; and

during knee joint articulation: the pair of tibial bearing components simultaneously sliding anteriorlyposteriorly in the outwardly curved tracks to provide unconstrained anterior-posterior shift, one of the tibial bearing components sliding anteriorly in one of the outwardly curved tracks while the other of the tibial components is sliding posteriorly in the other of the curved tracks to provide unconstrained axial rotation, and the tracks providing enhanced medial-lateral stability.

IN THE SPECIFICATION:

Page 13, line 25, and page 31, lines 29 and 30, change "planform" to --form in plan view--.